Habitat Houses Stand Against Hurricanes

Full Mitigation Best Practice Story

Multiple Counties, Florida

Pensacola, FL - Approximately 400 modest homes located in Escambia and Santa Rosa Counties are models for hurricane-resistant construction. These affordable, energy-efficient houses built by Pensacola Habitat for Humanity (PHFH) withstood two hurricanes in less than a year.

“We heard from many homeowners that they were afraid to come back to their houses to see the damages from Hurricane Ivan,” said PHFH Development Director Don Parmely. “But on their return they found their homes had survived with very little damage while many others nearby were badly damaged. And when (Hurricane) Dennis came, neighboring families stayed with people who owned Habitat houses because the houses had made it through (Hurricane) Ivan.”

PHFH is a non-profit Christian organization serving Santa Rosa and Escambia Counties. The organization raises money so that low-income families may own their own home. The homeowners and community volunteers build the houses under trained supervision.

Most mortgages for the Habitat houses average $320 per month. The houses are affordable because the organization depends on many volunteers to build them. More than 5,200 volunteers helped construct 40 houses in the two counties in 2004, under the supervision of volunteer building professionals. The volunteer labor does not diminish the quality or strength of construction, as Hurricanes Ivan and Dennis proved.

PHFH builds homes that are in compliance with current building code requirements. In 2000, the area adopted more stringent building codes that require stronger construction techniques, especially in coastal communities. Yet compliance with building codes does not tell the whole story of how the PHFH houses withstood the hurricanes while neighboring houses were destroyed. By designing the homes to meet the organization’s goals of energy efficiency and low maintenance, PHFH created structures that are more resistant to hurricane damage, according to Construction Supervisor James Salter.

The building plans do not include garages. “There’s no garage door to be blown in, allowing winds to blow out the roof and cause major damage,” explained Salter.

Every house is constructed on a concrete slab foundation. The construction uses either “Go-Bolts” or slab tie-downs to firmly anchor the structure to the foundation.

Hurricane clips, metal connectors with a minimum of six nails, attach rafters to walls. Double-pane, high-impact windows help reduce energy costs and are rated to withstand 150 mph winds. Every shingle is anchored with six nails per shingle.

Director Parmely noted that after Ivan struck the Gulf Coast, construction supervisors and volunteers made a point of checking on the houses that they helped build. They found that only 50 of 390 houses built by PHFH sustained minor wind damage, such as lost shingles, and only two were substantially damaged. A tree fell on one house, and wind-blown debris from neighboring houses crashed into the second.

Ivan’s devastation and the additional damages caused by Dennis have lead to a shortage of affordable housing in the two counties. The housing shortage and the publicity surrounding the strength of the Habitat-built houses has created an increased interest in PHFH housing. More than 150 people interested in applying for a Habitat house attended an information session held one month after Dennis struck. This was the largest attendance a Habitat session has experienced to date.

This story illustrates that building techniques that protect houses from hurricane damage do not have to be costly. PHFH truly achieved its goal of providing affordable housing that homeowners are able to maintain at a low cost. The majority of Habitat homeowners saved the expense of major repairs that many other homeowners in the area suffered. These families were also able to remain in their homes after the hurricanes, while their neighbors had to seek housing in shelters, hotels, or with families and friends.

Activity/Project Location

Geographical Area:	**Multiple Counties in a State**
FEMA Region:	**Region IV**
State:	**Florida**
County:	**Escambia County; Santa Rosa County**

Key Activity/Project Information

Sector:	**Private**
Hazard Type:	**Hurricane/Tropical Storm**
Activity/Project Type:	**Building Codes**
Activity/Project Start Date:	**01/2004**
Activity/Project End Date:	**12/2004**
Funding Source:	**Private funds**

Activity/Project Economic Analysis

Cost:	**Amount Not Available**

Activity/Project Disaster Information

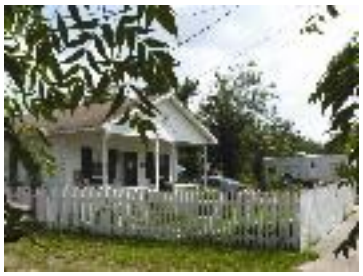
Mitigation Resulted From Federal Disaster?	**Unknown**
Value Tested By Disaster?	**Yes**
Tested By Federal Disaster #:	**No Federal Disaster specified**
Year First Tested:	**2004**
Repetitive Loss Property?	**Unknown**

Reference URLs

Reference URL 1:	**http://www.habitat.org**
Reference URL 2:	**http://www.fema.gov/about/divisions/mitigation.shtm**

Main Points

- Houses built by Pensacola Habitat for Humanity are models for hurricane-resistant construction.
- The affordable, energy-efficient PHFH houses withstood Hurricanes Ivan and Dennis, while neighboring houses were destroyed.
- Building materials, such as "Go-Bolts," hurricane clips, and double-pane windows, that protect houses from hurricane damage do not have to be costly.



This Pensacola home was sturdily built by Habitat for Humanity.

Habitat house constructed to updated building codes.